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10/824,901	04/14/2004	Daniel James Winarski	TUC920040009	7571

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Allen K. Bates
IBM Corporation - 90A/9032-1
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EXAMINER

TSUI, DANIEL

ART UNIT	PAPER NUMBER
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2185

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/824,901

Applicant(s)

WINARSKI ET AL.

Examiner

Daniel Tsui

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) 11, 12, 33 and 34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 13-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 1/4/07.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-10 and 13-32, drawn to a method and a device for executing a write-once read-many write command, classified in class 711, subclass 161.
 - II. Claims 11-12 and 33-34, drawn to a method and manufacture for sending a write-once read-many write command to a data storage device, classified in class 711, subclass 161.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the limitations of claim group II require only that a write-once read-many process be performed but not specifically the process of claim group I. The subcombination of claim group I has separate utility such as a write-once read-many process for any method requiring a step of write-once read-many processing and not necessarily the method of claim group II.

The examiner has required restriction between combination and subcombination inventions. Where applicant elects a subcombination, and claims thereto are

subsequently found allowable, any claim(s) depending from or otherwise requiring all the limitations of the allowable subcombination will be examined for patentability in accordance with 37 CFR 1.104. See MPEP § 821.04(a). Applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

3. During a telephone conversation with Jennifer Anda, a provisional election was made without traverse to prosecute the invention of group I, claims 1-10, 13-32. Affirmation of this election must be made by applicant in replying to this Office action. Claims 11-12 and 33-34 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Information Disclosure Statement

4. The information disclosure statement (IDS) submitted on April 14, 2004 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Oath/Declaration

5. The declaration filed on April 14, 2004 has been considered and accepted by the examiner.

Drawings

6. The drawings have been considered and accepted by the examiner.

Specification

7. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
8. The abstract has been considered and accepted by the examiner.
9. The specification has been considered and accepted by the examiner.

Claim Objections

10. Claims 1-10, 13-32 are objected to because of the following informalities: the claims include the use of the terms LBA and WORM. These terms are abbreviations. The unabbreviated term should be included in at least the first claim. Appropriate correction is required.

Claim Rejections - 35 USC § 101

11. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 24-32 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. In paragraph 43 of the specification, the applicant has provided evidence that applicant intends the medium to include signals.

As such the claim is drawn to a form of energy. Energy is not one of the four categories of invention and therefore the claims are not statutory. Energy is not a series of steps or acts and thus is not a process. Energy is not a physical article or object and as such is not a machine or manufacture. Energy is not a combination of substances and therefore not a composition of matter.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 13, 14, 19, 21, and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Basham.

As per claims 13 and 21, Basham teaches a data storage device comprising:
a data storage media for storage of data (cartridge 150; see figure 1);
a processor for controlling said data storage device (controller 106; see figure 1);
a WORM pointer memory coupled to said processor for storage of a WORM pointer (write append limiter 151; see figure 1);
a host device interface coupled to said processor for receiving commands from a host computer (interface 109; see figure 1).

Basham also teaches a data storage system with a host computer (host 102; see figure 1) and the data storage device.

As per claims 14 and 22, Basham teaches executing the write command to write data as WORM data on the data storage device (see paragraph 34, lines 12-14; and paragraph 49, lines 3-6).

As per claim 19, Basham teaches the WORM pointer memory located inside a sealed portion of the data storage device (the write append limiter is a part of the cartridge; see figure 1).

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 1-5, 15, and 23-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Basham (US PGPub 2002/0035665) in view of Sokolov (US 6,018,789).

As per claims 1 and 24, Basham teaches a method for writing data on a data storage device and an article of manufacture storing instructions for a method comprising the steps of:

said data storage device receiving a write command (step 406, and paragraph 47, lines 12-13);

obtaining a starting LBA from said write command (see paragraph 48, line 14);

obtaining a first WORM pointer (write append limiter 151) from a WORM pointer memory (see paragraph 28);

in response to said starting LBA being greater than or equal to said WORM pointer, executing said write command (see paragraph 49, and paragraph 11, lines 12-16).

Basham does not teach the write command including a LBA transfer length for the method to obtain. Sokolov teaches a data transfer request including a starting LBA and a transfer length. Therefore it would have been obvious at the time the invention was made to a person of ordinary skill in the art for the method taught by Basham to use a write command that includes a starting LBA and a LBA transfer length so they system can know how much data is in the transfer request.

As per claims 15 and 23, Basham teaches the data storage device and data storage system as applied in the rejection to claims 13 and 21 above. Basham does not teach the write command including a LBA transfer length for the method to obtain. Sokolov teaches a data transfer request including a starting LBA and a transfer length. Therefore it would have been obvious at the time the invention was made to a person of ordinary skill in the art for the device taught by Basham to use a write command that includes a starting LBA and a LBA transfer length so it can know how much data is in the transfer request.

As per claims 2 and 25, Basham teaches executing the write command to write data as WORM data on the data storage device (see paragraph 34, lines 12-14; and paragraph 49, lines 3-6).

As per claims 3 and 26, Basham teaches aborting the write command in response to the starting LBA being less than the first WORM pointer (see paragraph 52, line 14).

As per claims 4 and 27, Basham updating the WORM pointer after the write command has executed (see paragraph 57). Basham does not teach calculating a second WORM pointer that is equal to the numerical sum of the first WORM pointer and the transfer length and storing the second WORM pointer in the WORM pointer memory. Sokolov teaches the use of a write transfer length as applied in the rejections above. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to update the WORM pointer by generating a second WORM pointer that is equal to the sum of the first WORM pointer and the write transfer length. This new sum represents the end of the previous WORM data plus all the data written during the write transfer. It would then be obvious to store this new WORM pointer in the WORM memory since it represents the new collection of all the WORM data.

As per claims 5, 20, and 28, the combination of references teaches the method of updating the WORM pointer as claimed. Basham also teaches the use of a time stamp with the WORM pointer (see paragraph 49, line 20). It would have been obvious at the time the invention was made to a person of ordinary skill in the art to include a date stamp with the WORM pointer so the system can know when the WORM data was last written to.

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15. Claims 6-8, 29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Basham in view of Sokolov and further in view of Gill (US 6,469,854).

The combination of Basham and Sokolov teach the method for writing data to a data storage device as applied in the rejections to claims 1 and 24 above. The references do not teach rewriting the data in response to determining that the write command executed with at least one error. Gill teaches detecting a write error and rewriting the data to the same address (see column 1, lines 42-44). As per claims 6, 7, and 29, it would have been obvious for the method to rewrite the data at the starting LBA in response to determining that the write command executed with an error so that the write command can be retried and executed without error. As per claims 8 and 30, Gill teaches writing an indication of the error into the storage (see column 5, lines 56-58). It would have been obvious for the rewriting to begin at an LBA greater than the starting LBA so that the error indication data can be written at the starting LBA. This would allow the system to determine what type of writing error occurred when the data is read later.

16. Claims 9, 10, 31, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Basham in view of Sokolov and further in view of Mimatsu (US PGPub 2004/0111485).

The combination of Basham and Sokolov teach the method for writing data to a data storage device as applied in the rejections to claims 1 and 24 above. The references do not teach sending a device type to the host computer in response to

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receiving a first inquiry and sending the WORM pointer in response to receiving a second inquiry. Mimatsu teaches sending device type information in response to an inquiry command so the system can know what type of storage device is being used and configure the system appropriately (see paragraph 51, lines 9-12). It would have been obvious to send the device type information to the host in response to a first inquiry so that the host can configure the system appropriately and to send the WORM point in response to the second inquiry after the system has been configured.

17. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Basham in view of common practice in the art. As applied in the rejection to claim 13 above, Basham teaches the data storage device with a WORM pointer memory. Basham also teaches the WORM pointer memory being part of a cartridge for the data storage media (see paragraph 28). Basham does not teach the WORM pointer memory being an EPROM, PROM, or FLASH. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to store the WORM pointer memory in a nonvolatile storage on the cartridge so that the pointer can be accessed without having to read the actual storage media. It was well known at the time the invention was made to use EPROM, PROM, and FLASH memory as different forms of nonvolatile storage. Official notice is taken. Therefore it would have been obvious at the time the invention was made to have the WORM pointer memory be either an EPROM, PROM, or FLASH memory since any would offer the benefits of the nonvolatile storage in combination with the cartridge taught by Basham.

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Burke (US 5,321,824) teaches accessing last recorded data in a continuation chain.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel Tsui whose telephone number is (571)270-1022. The examiner can normally be reached on M through F, 8:00-4:30 (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sanjiv Shah can be reached on (571)272-4098. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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